

# Work Order ID 97971

**\*97971\***

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March-01-13 1:52:21 PM

Item ID: D4456-5

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Center Raingutter

Start Date: 3/01/13 Start Qty: 10.00

**\*10\***

Cust Item ID:

Required Date: 3/22/13 Req'd Qty: 10.00

**\*10\***

Customer:

Reference:

Approvals: Process Plan: MLS Date: 13-03-01 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4456	A								
100		0.00							
<b>*100*</b>	FLOW WATER JET								
Waterjet	Memo	0.00							
FLOW CNC Waterjet	1-Cut as per Dwg Dwg Rev: <u>A</u> Prog Rev: <u>A</u> 2-Deburr if necessary								
110		0.00							
<b>*110*</b>	QC2- Inspect parts off machine FAI/FAIB								
QC	Memo	0.00							
Quality Control									
120		0.00							
<b>*120*</b>	QC8- Inspect parts - second check								
QC	Memo	0.00							
Quality Control									

**DAS**  
**05**  
**13-03-06**

**DAS**  
**05**  
**13-03-06**

**(10)** 13-03-06 **DAS**  
**09**  
**13-03-06**

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>							
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification		QC Inspector			
Doc/Data <input type="checkbox"/>													
Equip/Tooling <input type="checkbox"/>													
Operator <input type="checkbox"/>													
Material <input type="checkbox"/>													
Setup <input type="checkbox"/>													
Other <input type="checkbox"/>													
Process <input type="checkbox"/>													
Supplier <input type="checkbox"/>													
Training <input type="checkbox"/>													
Unapproved <input type="checkbox"/>													
<b>FAULT CATEGORY</b>													
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio				<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions				<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other	

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130

**\*130\***

### Small Fab

## Small Fab

NC BRAKE

## Memo

- 1- Form as per dwg using DT9790.
- 2- After forming cut off tabs as per dwg

0.00

0.00

140

\*140\*

QC

## Quality Control

QC5- Inspect part completeness to step on W/O

## Memo

0.00

0.00

150

**\*150\***

HandFinish

## Hand Finishing

Chemical Conversion Coat per QSI005 4.1

## Memo

0.00

0.00



9

7B1341C

8/13/04/08

PTO

7

DAS  
27  
B 49

NCR: ☒ Yes ☐ No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: DA Date: 13/04/08QA Closed: ck Date: 13/11/10

Work Order: <u>97971</u>				DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. <u>D4456-5</u>				Rework <input type="checkbox"/> Scrap <input checked="" type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> Crosstube <input type="checkbox"/> Small Fab <input checked="" type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>					
NCR No. <u>13-2503</u>											
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data				1 part was out of tolerance moved when forming QTY ① R.C. <del>Process</del> Tooling	DAS 16 9-8 057042 13/04/12	Scrap + destroy No replace <u>40.07</u>	DAS 27 9-8 13/04/12	13/04/12	DAS 16 9-8 057042 13/04/12		
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY									
Landing Gear			General						
<input type="checkbox"/> Bending	<input checked="" type="checkbox"/> Bend	<input type="checkbox"/> Grain	<input type="checkbox"/> Ovalized	<input type="checkbox"/> Pressure/Forced		<input type="checkbox"/> Hardware	<input type="checkbox"/> Over/Under tolerance	<input type="checkbox"/> Temperature/Cure	
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Inspection Incomplete	<input type="checkbox"/> Part Incorrect	<input type="checkbox"/> Weld		<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Part Lost/Missing	<input type="checkbox"/> Wrong Stock Pulled	
<input type="checkbox"/> Cracks	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear	<input type="checkbox"/> Part Moved	<input type="checkbox"/> Other		<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Positioned Wrong		
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Power Loss/Surge			<input type="checkbox"/> Cuffs			
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Mislabeled				<input type="checkbox"/> Inspection Strip in Tube			
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread				<input type="checkbox"/> Ripples in Bend			
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input checked="" type="checkbox"/> Offset				<input type="checkbox"/> Torque Waves in Extrusion			
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration				<input type="checkbox"/> Turning Sequence			
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence				<input type="checkbox"/> Wave/Twist in Tube			
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input checked="" type="checkbox"/> Outside Dimensions							

# Work Order ID 97971

**\*97971\***

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Item ID: D4456-5 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Center Raingutter  
 Start Date: 3/01/13 Start Qty: 10.00 **\*10\*** Cust Item ID:  
 Required Date: 3/22/13 Req'd Qty: 10.00 **\*10\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 <b>*160*</b> QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00		<i>27</i> <i>134-11</i>		<i>10</i> <i>9</i>			
170 <b>*170*</b> Packaging Packaging	Identify as per dwg & Stock Location: _____  Memo <i>50241A</i>	0.00  0.00							<i>4/3/11</i>
180 <b>*180*</b> QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00  0.00							<i>13/4/12</i>

*Q130411*

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other

# Picklist Print

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Page 1

Work Order ID: 97971

Parent Item: D4456-5

Parent Item Name: Center Raingutter

Start Date: 3/01/13

Required Date: 3/22/13

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A 11.11.21 NEW ISSUE DD VERF:EC  
DWG REVa DD VERF:EC

IPP REV:B 12.01.18 AS PER

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6S.032 6061-T6 Sheet 0.032"		Purchased	No			100	sf	1,160.0700	0.5	5.263158		13.03.06	

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT021	1160.07	
121099	171.94	
122256	46.78	
122737	44.8	
123097	71.9	
123135	37.7	
123137 x6	66.05	
123293	58.5	
123483	263.4	
123701	63	
124629 x4	336	

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  <div style="display: flex; justify-content: space-around;"> <div> <input type="checkbox"/> Rework  <input type="checkbox"/> Scrap  <input type="checkbox"/> Use-as-is  <input type="checkbox"/> Work Order Update         </div> <div> <input type="checkbox"/> Skid-tube  <input type="checkbox"/> Machining  <input type="checkbox"/> Thermoforming  <input type="checkbox"/> Large Fab         </div> <div> <input type="checkbox"/> Crosstube  <input type="checkbox"/> Small Fab  <input type="checkbox"/> Finishing  <input type="checkbox"/> Composite         </div> <div> <input type="checkbox"/> Water Jet  <input type="checkbox"/> Prod. Eng. Coord.  <input type="checkbox"/> Rec/Store/Packaging  <input type="checkbox"/> Supplier         </div> <div> <input type="checkbox"/> Engineering  <input type="checkbox"/> Quality  <input type="checkbox"/> Other         </div> </div>
--	--

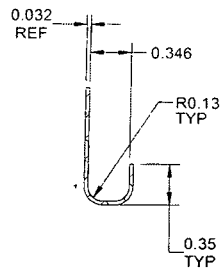
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

### FAULT CATEGORY

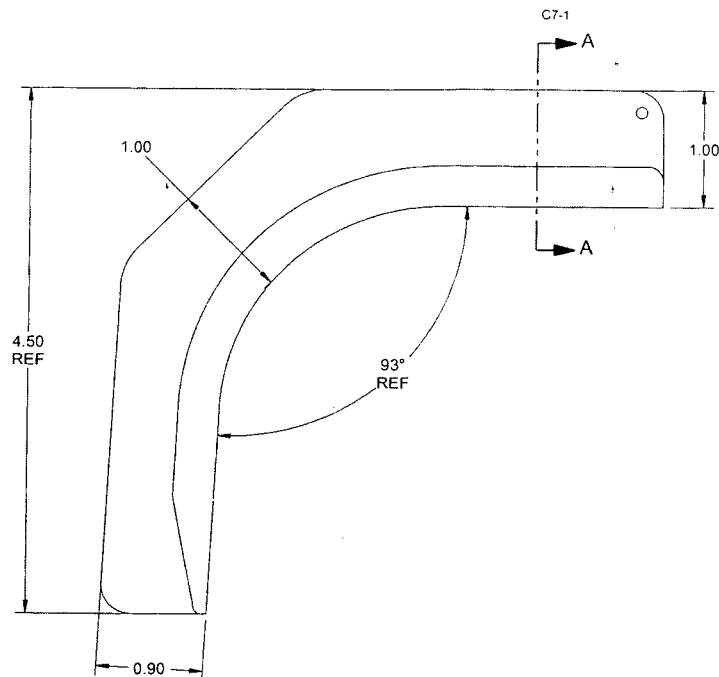
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions  <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other
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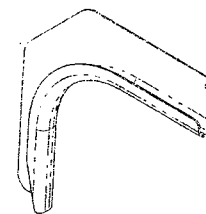
**SECTION A-A** D4-1



**D4456-1 FWD RAINGUTTER, LH**

**NOTES:**

- 1) MATERIAL: MAKE FROM D4456-1F FLAT PATTERN  
HEAT TREAT TO 6061-T6 CONDITION AFTER FORMING
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.04 lbs
- 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING



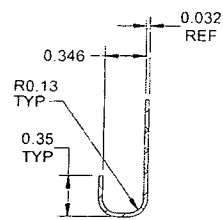
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 97971-MU  
1303-a

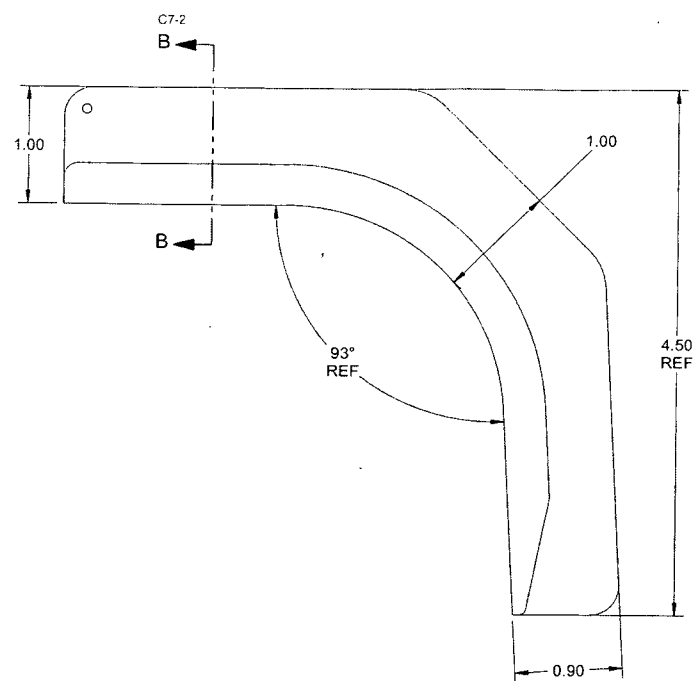
**RELEASED**  
R 2012-01-17  
JMD

A NEW ISSUE		RF	11.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<del>RF</del>	DRAWING NO.	REV. A
MFG. APPR.	<del>RF</del>	D4456	SHEET 1 OF 8
APPROVED	<del>RF</del>	TITLE	SCALE
DE APPR.	<del>RF</del>	RAINGUTTER	NTS
DATE	11.11.17	<small>COPYRIGHT © 2011 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

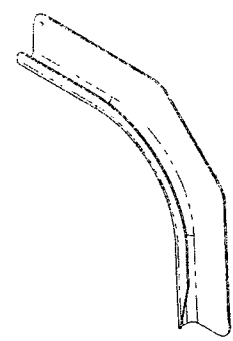
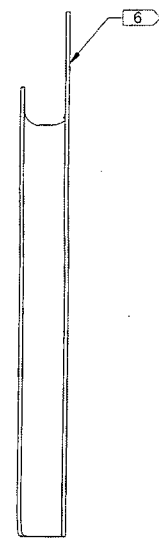
97971



**SECTION B-B** D6-2



**D4456-2 FWD RAINGUTTER, RH**

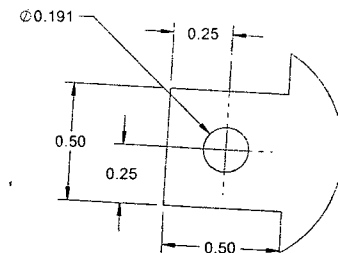
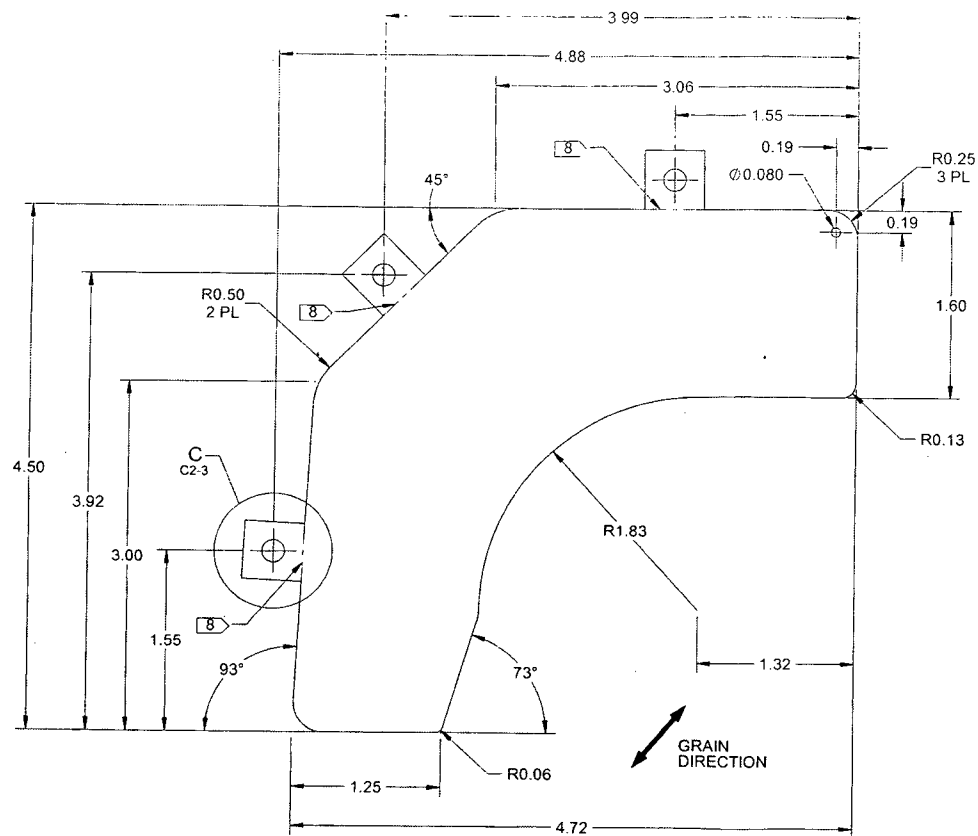


RELEASED  
2012-01-17  
WHP

- NOTES:**
- 1) MATERIAL: MAKE FROM D4456-1F FLAT PATTERN  
HEAT TREAT TO 6061-T6 CONDITION AFTER FORMING
  - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
  - 7) WEIGHT: 0.03 lbs
  - 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO. <b>D4456</b>	REV. A
MFG. APPR.	<i>[Signature]</i>	SHEET 2 OF 8	
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>FWD RAINGUTTER, RH</b>	1:1
DATE	11.11.17	<small>COPYRIGHT © 2011 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

97971



DETAIL C  
TYP C7-3  
C6-3  
D5-3

**D4456-1F FWD RAINGUTTER FLAT PATTERN**

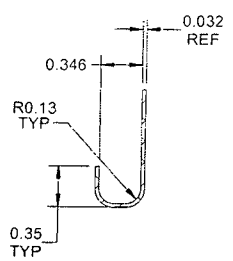
**NOTES:**

- 1) MATERIAL: 6061-O ALUMINUM SHEET 0.032 THICK  
PER AMS QQ-A-250/11 OR AMS 4025  
REF DART SPEC M6061-OS.032
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.04 lbs

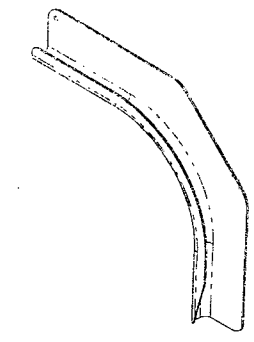
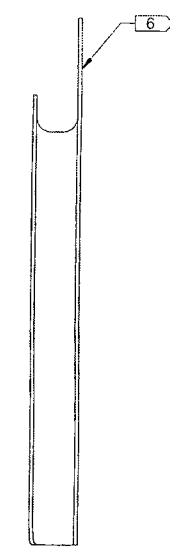
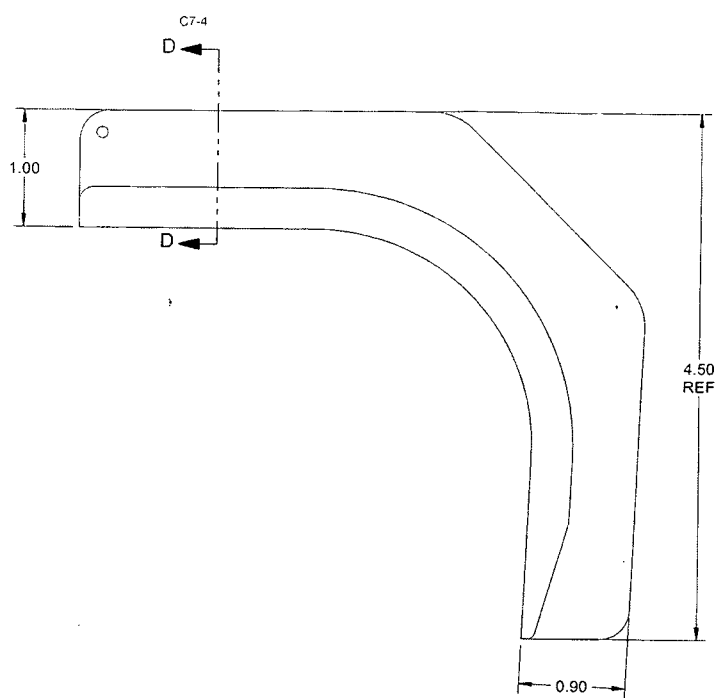
DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	<b>D4456</b>	SHEET 3 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>RAINGUTTER</b>	NTS
DATE	11.11.17	<small>           COPYRIGHT © 2011 BY DART AEROSPACE USA, INC.            THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS            NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT            WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.         </small>	

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2012-01-17  
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**SECTION D-D C6-4**



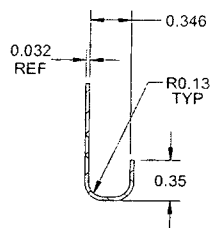
**D4456-3 AFT RAINGUTTER, LH**

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2012-01-17

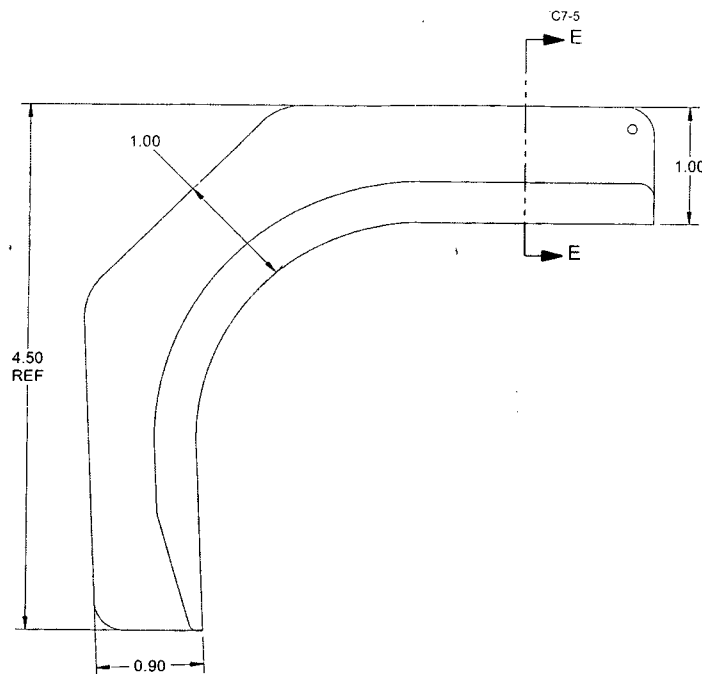
- NOTES:**
- 1) MATERIAL: MAKE FROM D4456-3F FLAT PATTERN  
HEAT TREAT TO 6061-T6 CONDITION AFTER FORMING
  - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
  - 7) WEIGHT: 0.04 lbs
  - 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	<b>D4456</b>	SHEET 4 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>RAINGUTTER</b>	NTS
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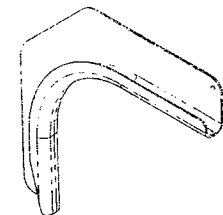
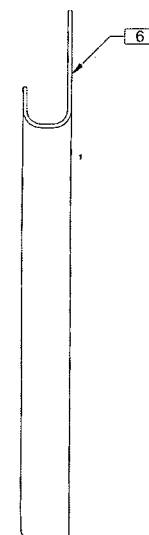
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**SECTION E-E** D4-5



**D4456-4 AFT RAINGUTTER, RH**



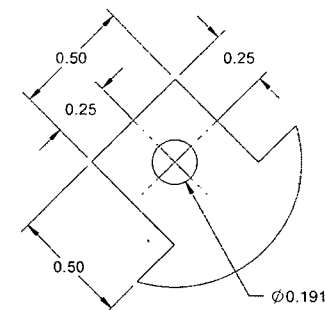
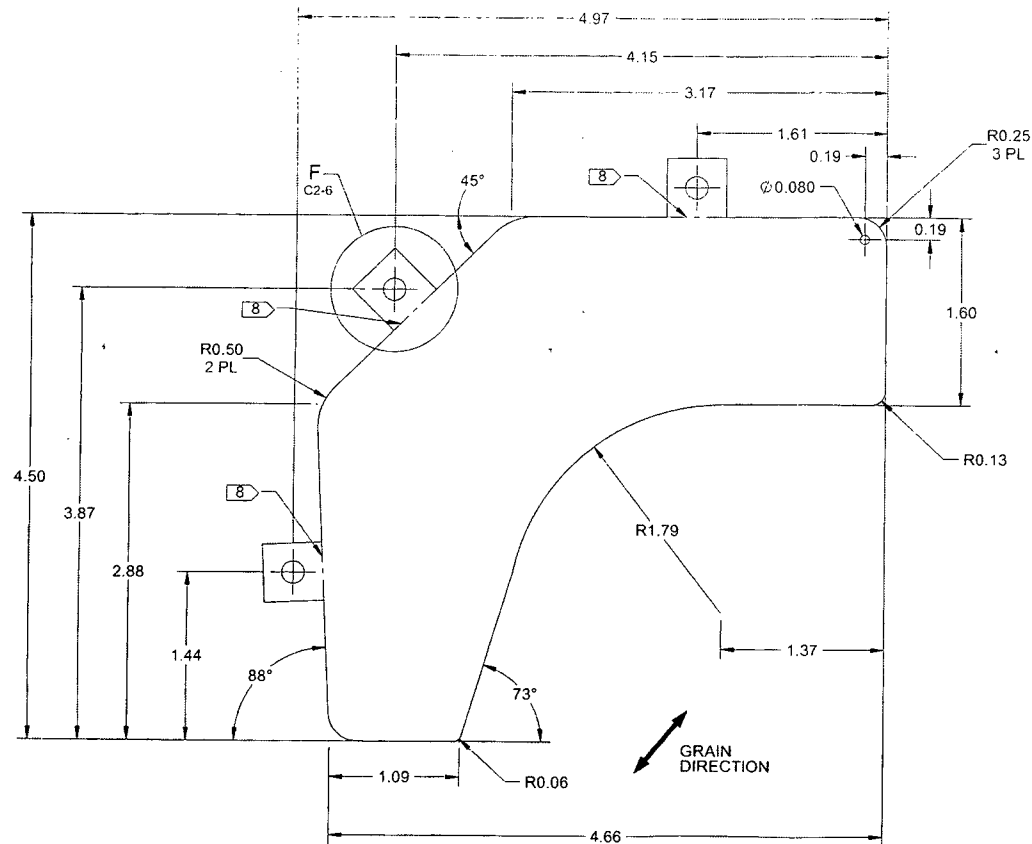
RELEASE  
2012-01-17

**NOTES:**

- 1) MATERIAL: MAKE FROM D4456-3F FLAT PATTERN  
HEAT TREAT TO 6061-T6 CONDITION AFTER FORMING
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.04 lbs
- 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	RF	KENT, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	<b>D4456</b>	SHEET 5 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>RAINGUTTER</b>	NTS
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**DETAIL F**  
TYP 87-6  
C6-6  
D5-6

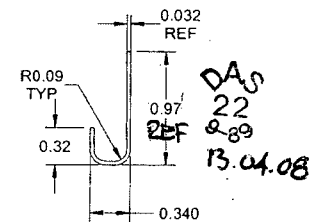
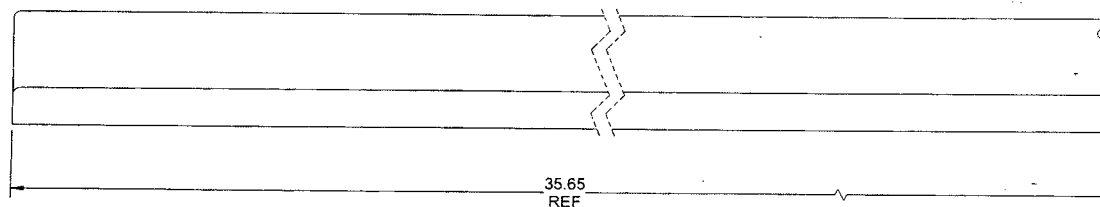
**D4456-3F AFT RAINGUTTER FLAT PATTERN**

**NOTES:**

- 1) MATERIAL: 6061-O ALUMINUM SHEET 0.032 THICK  
PER AMS QQ-A-250/11 OR AMS 4025  
REF DART SPEC M6061-OS.032
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.04 lbs

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	<b>D4456</b>	SHEET 6 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>RAINGUTTER</b>	NTS
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**D4456-5 CENTER RAINGUTTER**

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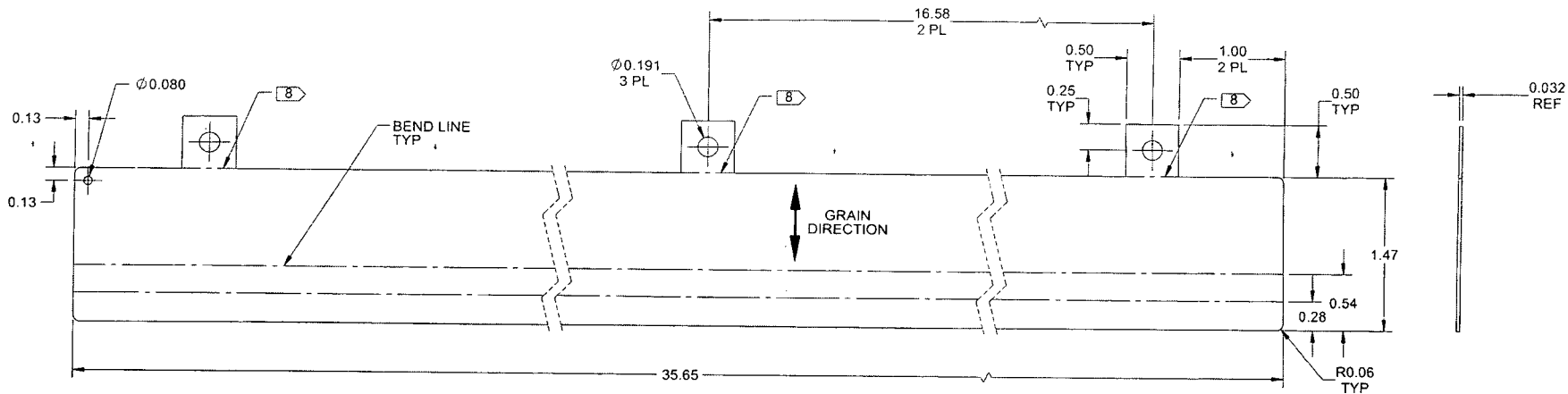
**NOTES:**

- 1) MATERIAL: MAKE FROM D4456-5F FLAT PATTERN
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.17 lbs
- 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO. <b>D4456</b>	REV. A
MFG. APPR.	<i>[Signature]</i>		SHEET 7 OF 8
APPROVED	<i>[Signature]</i>	TITLE <b>RAINGUTTER</b>	SCALE
DE APPR.	<i>[Signature]</i>		NTS
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**D4456-5F CENTER RAINGUTTER FLAT PATTERN**

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2012-01-17

**NOTES:**

- 1) MATERIAL: 6061-T6/T62 ALUMINUM SHEET 0.032 THICK  
PER QQ-A-250/11 OR AMS-QQ-A-250/11  
OR AMS 4025 OR AMS 4027 OR ASTM B209  
REF DART SPEC M6061T6S.032
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.17 lbs

DESIGN	RF	<b>DART AEROSPACE USA, INC.</b> KENT, WA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	<b>D4456</b>	SHEET 8 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>RAINGUTTER</b>	NTS
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